

**FIG. 1A**

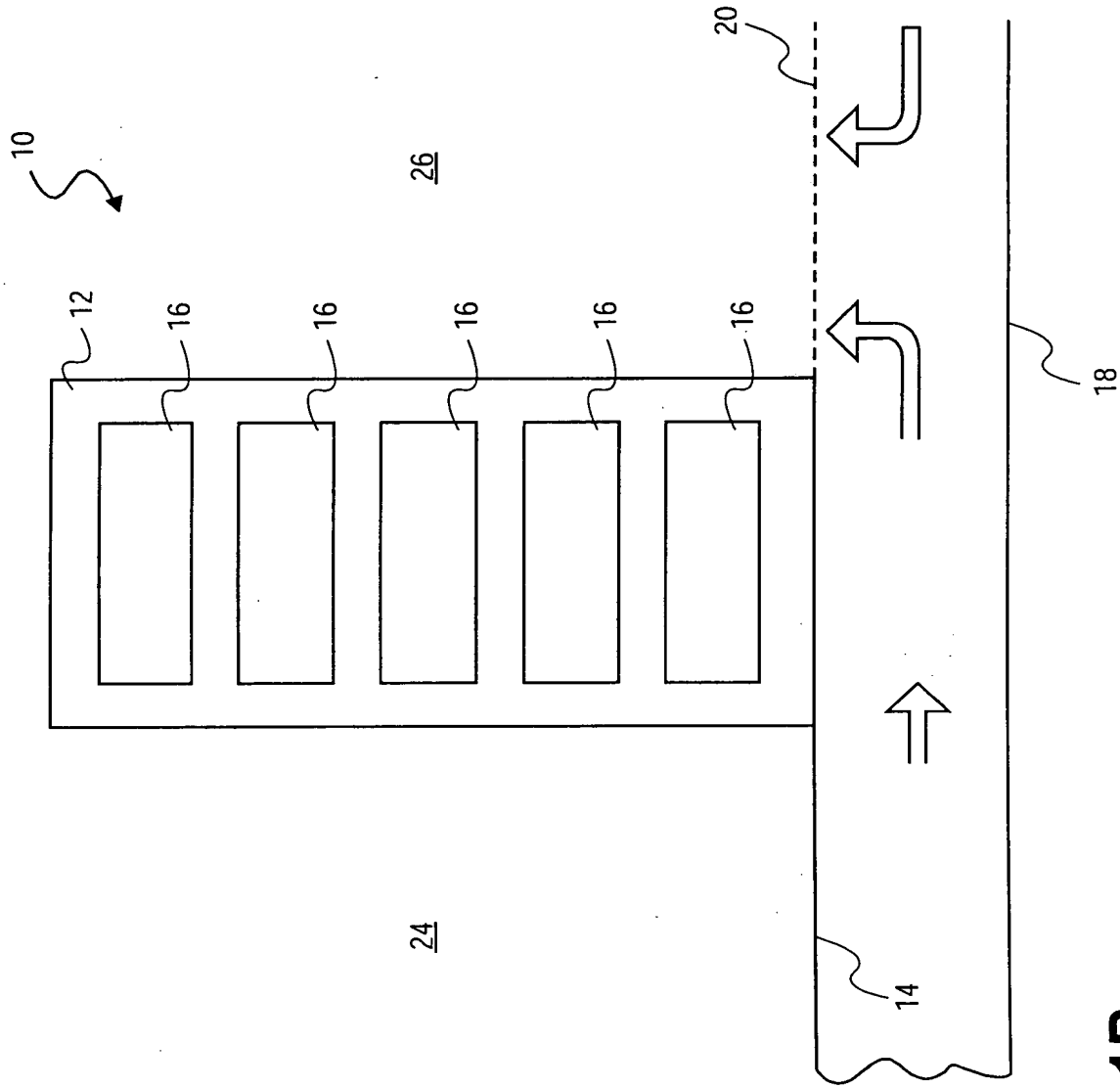


FIG. 1B

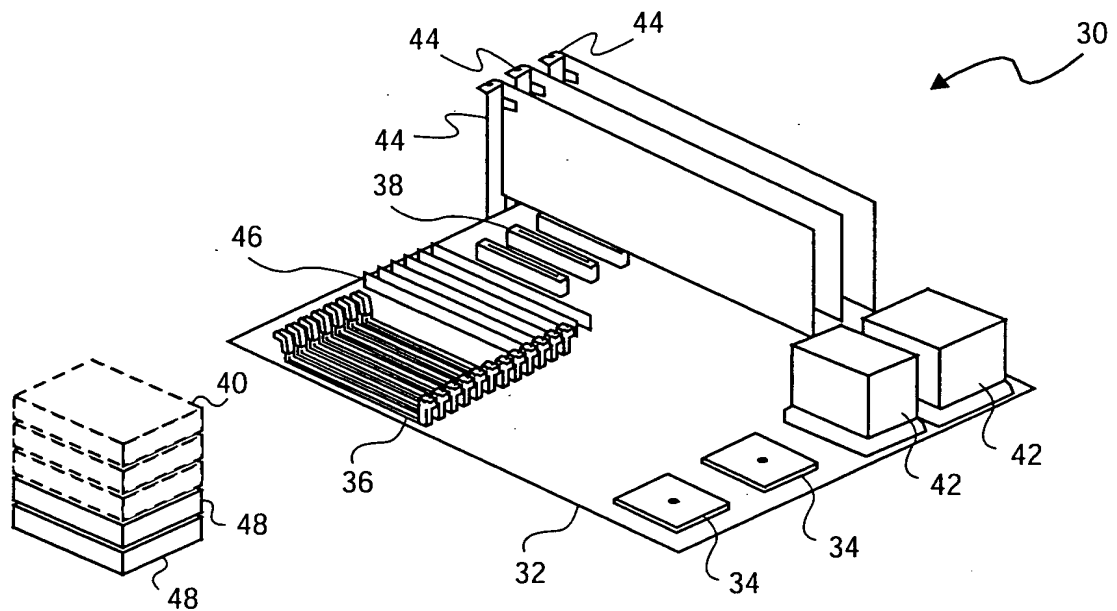


FIG. 2A

COMPONENT	ACTUAL CONFIG.	MAX CONFIG.	DE- RATING FACTOR	VR EFFICIENCY	POWER RANGE LOWER- UPPER (WATTS)	POWER CONSUMED (WATTS)
PROCESSORS (CPU)	2	4	0.8	0.85	30-60	$\frac{(4 \times 60 \times 0.8)}{0.85} = 225.9$
MEMORY	6	12	0.7	0.85	5-20	$\frac{(12 \times 20 \times 0.7)}{0.85} = 197.6$
I/O ADAPTERS	3	8	0.5	1.0	5-20	$\frac{(8 \times 20 \times 0.5)}{1.0} = 80$
DISK DRIVES	2	5	0.8	1.0	10-20	$\frac{(5 \times 20 \times 0.8)}{1.0} = 50$
P <sub>MAX</sub> →						553.5W

FIG. 2B

209220-842200

Component	Quantity	Power (Watts)	De-rating Factor	VR Efficiency	Subtotal
$1$	$q_1$	$p_1$	$D_1$	$E_1$	$q_1(\frac{p_1 D_1}{E_1})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$j$	$q_j$	$p_j$	$D_j$	$E_j$	$q_j(\frac{p_j D_j}{E_j})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$J$	$q_J$	$p_J$	$D_J$	$E_J$	$q_J(\frac{p_J D_J}{E_J})$

$$P_{\text{CONFIG}} \rightarrow \sum_{j=1}^J q_j(\frac{p_j D_j}{E_j})$$

Figure 3A

Component	Quantity	Power (Watts)	De-rating Factor	VR Efficiency	Subtotal (Watts)
Processors	2	40	0.8	0.85	75.3
Memory	6	10	0.7	0.85	49.4
I/O	3	10	0.5	1.0	15
Disk	2	15	0.8	1.0	24

$$P_{\text{CONFIG}} \rightarrow 163.7\text{W}$$

Figure 3B

209220" 84422007

Component	Quantity	Power (Watts)	De- rating Factor	VR Efficiency	Subtotal (Watts)
$I$	$q_1$	$p_1$	$D_1$	$E_1$	$q_1(\frac{p_1 D_1}{E_1})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$j$	$q_j$	$p_j$	$D_j$	$E_j$	$q_j(\frac{p_j D_j}{E_j})$
$j+1$	$q_{j+1}$	$P_{(MAX)j+1}$	$D_{j+1}$	$E_{j+1}$	$q_{j+1}(\frac{P_{(MAX)j+1} D_{j+1}}{E_{j+1}})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$J$	$q_J$	$P_{(MAX)J}$	$D_J$	$E_J$	$q_J(\frac{P_{(MAX)J} D_J}{E_J})$

$$P_{CONFIG} \rightarrow \sum_{j=1}^J q_j(\frac{p_j D_j}{E_j}) + \sum_{j=j+1}^J q_j(\frac{P_{(MAX)j} D_j}{E_j})$$

Figure 4A

Component	Quantity	Power (Watts)	De-rating Factor	VR Efficiency	Subtotal (Watts)
CPU	2	40	0.8	0.85	75.3
Memory	6	20	0.7	0.85	98.8
I/O	3	20	0.5	1.0	30
Disk	2	20	0.8	1.0	32

$P_{CONFIG} \rightarrow 236.1W$

Figure 4B

Component	Quantity	Power (Watts)	De-rating Factor	VR Efficiency	Subtotal (Watts)
<i>1</i>	<i>q<sub>1</sub></i>	<i>p<sub>1</sub></i>	<i>D<sub>1</sub></i>	<i>E<sub>1</sub></i>	$q_1(\frac{p_1 D_1}{E_1})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
<i>j</i>	<i>q<sub>j</sub></i>	<i>p<sub>j</sub></i>	<i>D<sub>j</sub></i>	<i>E<sub>j</sub></i>	$q_j(\frac{p_j D_j}{E_j})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
<i>J</i>	<i>q<sub>J</sub></i>	<i>p<sub>J</sub></i>	<i>D<sub>J</sub></i>	<i>E<sub>J</sub></i>	$q_J(\frac{p_J D_J}{E_J})$

$$P_{\text{CONFIG}} \rightarrow \beta \left[ \sum_{j=1}^J q_j \left( \frac{p_j D_j}{E_j} \right) \right]$$

Figure 5A

Component	Quantity	Power (Watts)	De-rating Factor	VR Efficiency	Subtotal (Watts)
CPU	2	40	0.8	0.85	75.3
Memory	6	10	0.7	0.85	49.4
I/O	3	10	0.5	1.0	15
Disk	2	15	0.8	1.0	24

Note:  $\beta = 1.1$   $P_{\text{CONFIG}} \rightarrow 180.1\text{W}$

Figure 5B

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10022448" 022602

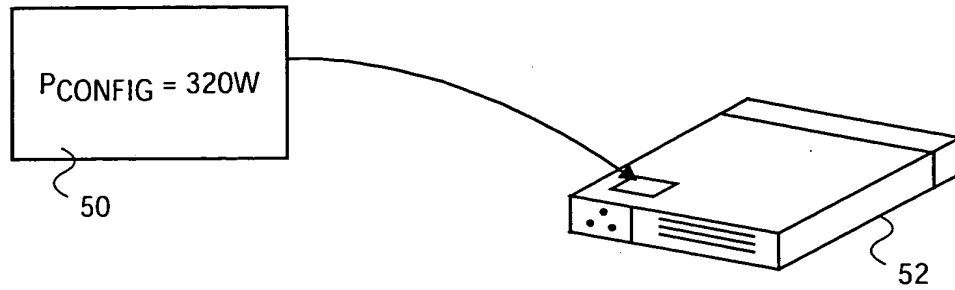


FIG. 6A

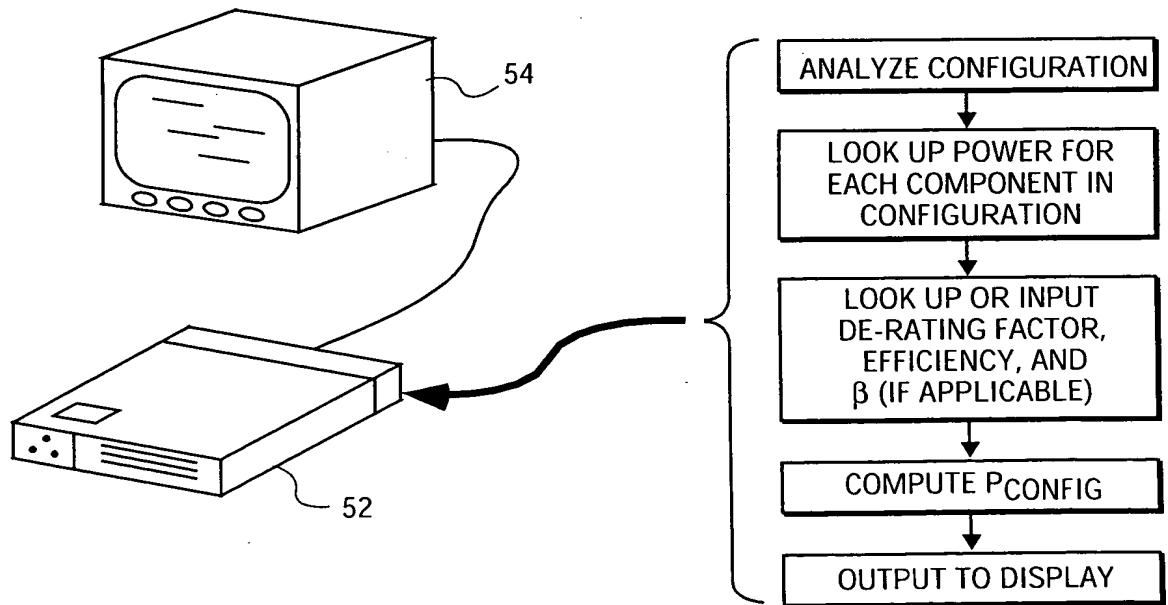


FIG. 6B

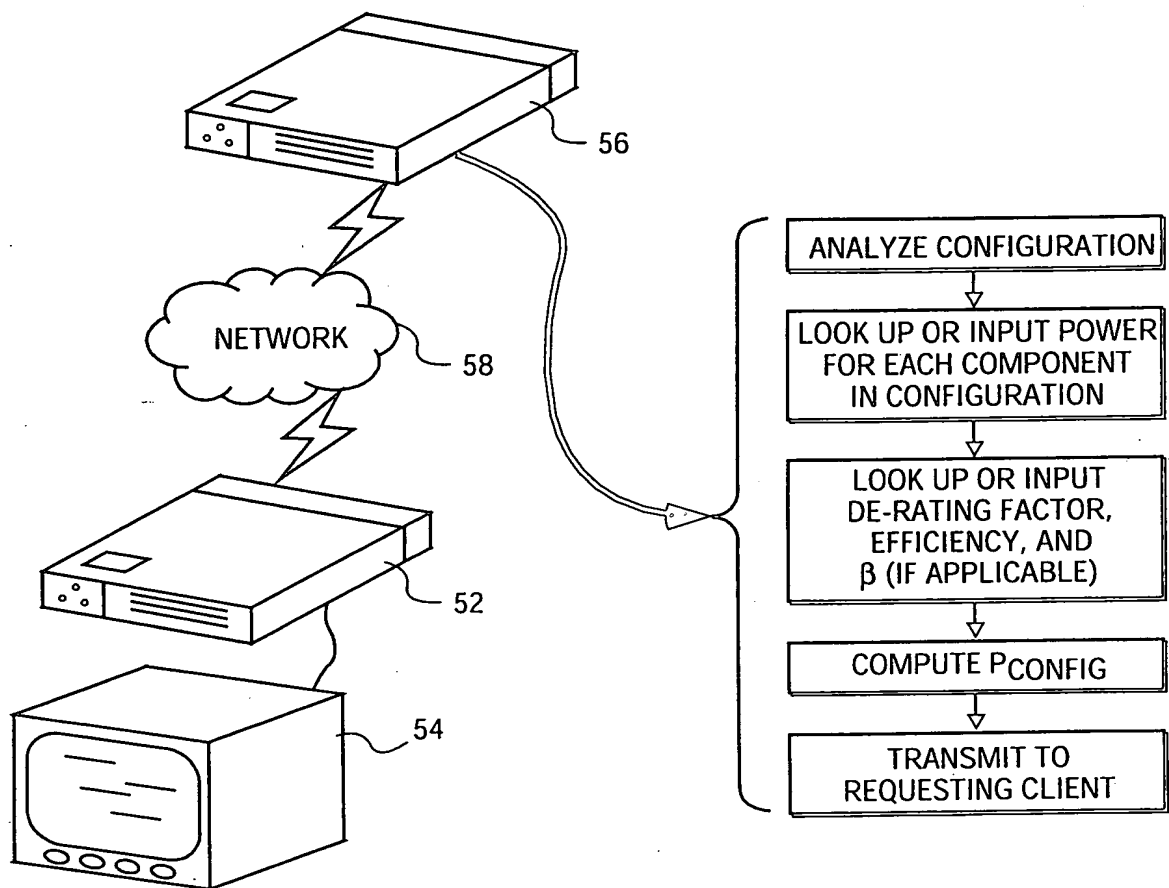


FIG. 6C